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ABSTRACT

This publication is a guide to assessing the competence of prospective elementary school teachers in the liberal studies teacher preparation programs in California. The guide was developed as part of a statewide response to legislated entry and exit standards for teachers in elementary and secondary schools. An introduction describes the regulations and executive orders which are the basis for the guide, and the conference at which the guide was developed. A section on the principles for assessment in the liberal studies outlines eight key questions raised at the conference and discusses the unity of goals among liberal studies programs. The next section establishes two categories of competencies: (1) generic competencies which are fundamental to all disciplines; and (2) specific competencies in language arts, social science and history, mathematics, science, humanities, visual and performing arts, physical education and health, and human growth and development. The following section discusses general guidelines for and methods of assessment. Next, two model assessment formats are presented with diagrams. A section of recommendations focuses on resource and administrative issues. The final section offers recommendations for providing information and advice to potential teachers. (JB)

Resource Guide

Subject Matter Assessment of Prospective Elementary School Teachers

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- begin to build a subset of information on teaching and learning that supports *The National Teaching and Learning Forum (NTLF)*, ERIC/HE's newsletter;
- encourage use of the ERIC system by CSU/ITL member affiliates and the *NTLF* readership; and
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Resource Guide

Subject Matter Assessment of Prospective Elementary School Teachers

Report of the California State University Workgroup on Assessment of Prospective Elementary School Teachers

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Introduction

The California State University System (CSU) annually recommends for credentials about 10% of the nation's new teachers. In recognition of its responsibility to assure these new professionals are competent, the CSU Board of Trustees, in September 1985, adopted Title 5 regulations related to entry and exit standards for those who wish to become teachers. Executive Order 476, designed to implement the new Title 5 regulations, was issued on March 1, 1986. One aspect of Executive Order 476 provides for the assessment and assurance that prospective teaching credential candidates must demonstrate subject matter competence through a distinct assessment process prior to being recommended for entrance into student teaching. Executive Order 476 further states that it is the responsibility of the various disciplines offering waiver programs (the academic "major" for those wishing to become teachers) to provide for the assessment and to certify subject matter competence:

> The department or program for single-subject or multiple-subjects waiver programs shall certify, prior to admission of a student to student teaching, that the student has mastery of the subject matter appropriate to the credential objective and is prepared for student teaching. This responsibility extends to assessing the competence in subject matter, not only of students in the waiver program on the campus, but also of those candidates who have completed the waiver program elsewhere or who have passed the National Teacher Examination (NTE). The appropriate departments or programs shall establish criteria and procedures for the certification of subject matter competence of the candidate. These departments and programs should maintain close communication with the School/College of Education as they develop procedures. (Executive Order 476)

It is felt that the certification of subject matter competence through assessment processes of those who are recommended for a multiple subjects teaching credential will help assure policy makers and the public that future teachers are appropriately grounded in subject matter. This subject matter competence, coupled with pedagogically appropriate practices, will help assure the quality of instruction in the public schools.

Recognizing that CSU campuses might well need assistance in the development of the content and process of assessing subject matter competence, the statewide Academic Senate requested that the Chancellor's Office hold a series of conferences designed to develop a resource guide to help facilitate the implementation of Executive Order 476. The development of resource guides was discussed and the concept was supported by the CSU Vice Presidents for Academic Affairs. An added value of the conference, for the multiple-subjects area, would be to provide campuses with a resource to assist them in the development of revised Liberal Studies programs to meet new Commission on Teacher Credentialing (CTC) program standards.

On November 30, 1987, CSU campus representatives met for a three-day conference to define selected principles of subject matter assessment, potential sources of assessment information, possible processes to be used in assessing competence, and sample generic as well as subject matter specific competencies associated with Liberal Studies programs. The sixty plus conference participants included faculty representing the ten academic disciplines defined by 1987 legislation (AB 1759-Clute) as those academic areas associated with Liberal Studies programs, education

faculty, coordinators of Liberal Studies programs, CSU administrators, California State Department of Education staff, California Commission on Teacher Credentialing staff, experts in the field of testing, staff of the CSU Office of the Chancellor, and school teachers and administrators.

It should be clearly understood that the participants in this conference recognize that each campus is unique and that specific Liberal Studies programs vary from campus to campus. However, the committee also recognizes a need for a degree of subject matter consistency between and among those subject matter programs that prepare teachers in California. It is the hope of the workgroup that developed this document that it will serve both purposes; that, without being prescriptive, it will serve as a resource guide to lend some statewide consistency to Liberal Studies programs, but also allow individual campuses to develop unique responses to the implementation of Executive Order 476 and new CTC standards for Liberal Studies programs. Specifically, it is the hope of the workgroup that developed this document that each campus will move forward to:

- ☐ *Include the concept of assessing and assuring subject matter competence while reviewing and refining campus Liberal Studies programs;*
- ☐ *Review and refine campus-based subject matter assessment processes using this resource, campus experience, and the resources of public school personnel;*
- ☐ *Identify, implement, and evaluate pilot assessment models;*
- ☐ *Refine pilot models and institutionalize assessment processes;*
- ☐ *Provide for ongoing evaluation of the results obtained from assessment models and fine tune curriculum based on the results of evaluation.*

This workgroup, focused on Liberal Studies programs, drew heavily on the earlier work of the English subject matter specialists for both the workshop format and some specific aspects of their report, *Subject Matter Assessment of Prospective English Teachers*. This workgroup is indebted to John White and Carolyn Denham, co-chairs of the English workgroup; and to Jan Mendelsohn, Associate Dean for Academic Affairs in the CSU Chancellor's Office, for their guidance in the planning and implementation of this process.

On April 20 and 21, 1988, a conference was held to disseminate this report to CSU campus representatives from the range of disciplines engaged in the delivery of Liberal Studies programs. The conference also provided the opportunity for campus representatives to refine the statements of competence and share successes and common concerns.

Principles of Liberal Studies Assessment

The assessment and assurance of subject matter competence for those who wish to become teachers is an important step in securing the quality of public education. The workgroup that developed this report was faced with a number of significant questions that formed the basis for a three-day work session as well as for the report. These questions included:

- ☐ *How does a competency document accommodate for the need to specify a common core of content competencies across the CSU Liberal Studies programs, while at the same time allowing for the diversity of programs that result from appropriately variant responses to program standards?*

- ☐ *How can a core of competencies be developed that will apply to prospective teachers who complete a waiver program and are assessed for subject matter competence by a campus where they have not completed a Liberal Studies Waiver Program (i.e., NTE, out-of-state applicants)?*

- ☐ *How can the importance of multiple measures of subject matter competence and multiple points of assessment be effectively defined by a single document?*

- ☐ *In what ways can the redesign of Liberal Studies programs, based on the new Commission on Teacher Credentialing (CTC) standards, be coupled with the design for assessment of subject matter competence as defined by Executive Order 476?*

- ☐ *In what ways can it be assured that students will be conscientiously assessed for subject matter competence prior to being required to enroll in courses that would provide competence that is perceived to be lacking?*

- ☐ *What are key elements of effective assessment processes?*

- ☐ *What commitments and resources are required to implement a meaningful and effective subject matter competence assessment process?*

- ☐ *What are the generic and discipline specific competencies appropriate for each subject matter area defined by both the CTC and the document that guides the development of Liberal Studies programs?*

This report attempts to address each of the issues identified in the above questions.

I. Unity of Program Goals/Diversity of Programs

Many students enrolled in CSU Liberal Studies programs intend to seek a California Multiple Subjects Credential which will authorize them to teach in diverse geographic areas of California. It is felt that Liberal Studies programs across the state should reflect a common set of standards and, therefore, maintain similar program goals to insure that all California teachers are well prepared to teach. This will help assure that learners, no matter what their geographic location, have equal access to quality learning experiences. The subject matter knowledge base associated with Liberal Studies programs should evidence consistency of goals across the nineteen CSU campuses. The individual recommended for a Multiple Subjects Credential from any CSU campus should know and be able to provide

evidence of the range of competence in the subject matter knowledge that educators and policy makers agree qualify an individual to teach in the public schools. However, it is clearly recognized that the manner in which program goals are implemented and, therefore, the specific design of Liberal Studies programs will vary from campus to campus. Specific program variations should be balanced with the need to maintain relatively consistent knowledge base outcomes across programs.

- ☐ *Core areas of competence include performance abilities, understandings and knowledge found common to all programs and generally thought to be essential to teaching in the public schools. A suggested set of generic and discipline specific competencies for Liberal Studies programs is presented elsewhere in this report. Additional competencies may be required by each individual campus.*

- ☐ *By assessing the range of competency within each subject area, using a variety of assessment techniques, assurance will be provided that each student has skill, understanding, and knowledge at an expected level to be able to function effectively as a classroom teacher.*

- ☐ *The concepts and processes associated with assessing subject matter competence should not suggest that knowledge and skill needed by a teacher is limited to that which has been taught and/or that which can be measured. The concept of a liberal studies education should reflect the belief that the best education teaches one how to learn and, in addition, make clear that what is worth knowing cannot necessarily be directly assessed or measured. Therefore, this resource guide is intended to suggest an assessment process that will encourage and reinforce lifelong learning rather than a static education based on a prescribed body of content.*

II. Multiple Measures

In order to fully assess the range of subject matter competence held by an individual, it is necessary to use a variety of measures and assess competence at varying points during a student's academic career. "Paper and pencil" tests are useful for many purposes, but need to be placed in proper balance with other means that can be utilized to assess competence (e.g., oral presentations, observed performances, and other less traditional means of determining whether an individual possesses and is able to utilize knowledge). Multiple measures of competence, appropriately spaced through a learner's career, will provide an assurance that competence as well as learner needs are identified early in order to structure activities that will ultimately lead to a full range of competence.

Full implementation of assessment processes utilizing multiple measures of competence will help assure that only qualified candidates progress toward teaching careers.

It is the conviction of those who participated in the development of this report that the assessment of competence is an all-campus responsibility throughout the student's university experience. Even though a final assessment of competence should occur just prior to entrance into a professional preparation program, or just prior to student teaching, the most useful assessment processes will, in addition, be ongoing and have diagnostic as well as evaluative values. Since student learning crosses disciplinary boundaries, so must assessment processes.

- ☐ *Through curriculum development and actual teaching, faculty must provide opportunities for students to acquire and develop the expected competencies.*

- ☐ *The competencies are generally applicable to any liberal education. Liberal Studies has the need and opportunity to contemplate and define these competencies, but the same issues should be addressed by all campus faculty.*

- ☐ *Successful assessment programs will require continuing collaborative faculty efforts which cut across disciplines and, therefore, will be interdisciplinary in nature.*

It is recommended that subject matter assessment be applied to all those who apply for teaching credentials in California, including individuals who elect to take the National Teacher Examination (NTE).

III. Assessment Design

A. Process

The following are suggested to guide in the development of CSU assessment programs:

- ☐ *Within agreed-upon guidelines, authority and responsibility for assessment design and implementation should be reserved to the individual CSU campus. It is appropriate that subject matter competence be assessed by faculty rather than the Legislature or other government agencies.*

- ☐ *Subject matter departments should work closely with schools or departments of education to design and implement subject area competency assessment.*

- ☐ *Additional resources for the design and implementation of assessment programs may include: measurement experts (on or off campus), external evaluators, cross-campus consultants, community college faculty, public school personnel, credential candidates, and newly credentialed teachers who may reflect upon their own subject matter preparation.*

B. Features

The following are features of Liberal Studies competency assessment that campuses may want to consider incorporating into their assessment model:

- ☐ *Multiple measures may be necessary. A single test, observation, or interview may not provide a sufficiently reliable or valid basis for the diagnosis or determination of subject matter competence.*

- ☐ *For the same reason, direct performance appraisals are needed to supplement indirect measures such as paper and pencil tests.*

- ☐ *Qualitative as well as quantitative methods of evaluation should be used, although qualitative observations may be recorded using quantitative rating scales or numerical coding. Qualitative appraisals should be based on the systematic application of explicit criteria. Great care should be exercised in the statistical treatment and interpretation of these qualitative judgments.*

- ☐ *If evaluations are competency based, they need to be criterion-referenced rather than norm-referenced. The goal of assessment is to certify an adequate level of subject matter preparation in terms of specific criteria, not to rank order individuals or determine their place in a distribution. Criterion-based assessment does not involve predetermined or expected pass rates.*

- ☐ *Assessment procedures should meet accepted standards of professional evaluation with respect to content or construct validity and reliability. Whenever possible, independent ratings should be used to enhance the reliability of criterion-based judgments. This search for consistency should not obscure the fact that these independent judgments may provide useful diagnostic information to candidates. Ideally, all qualitative judgments based on direct observations or interviews should involve at least two independent ratings.*

- ☐ *Assessment practices should be directed toward the dual goals of encouraging candidates from diverse cultures to enter teaching and at the same time preparing future teachers to teach students from a variety of cultures. To achieve these goals, performance assessment procedures should encourage students to demonstrate competence in many multicultural areas and should foster constructive attitudes toward a variety of oral and written dialects and ESL or bilingual influences on usage.*

C. Scheduling

The scheduling of subject matter assessment is an important consideration, since the assessment serves both formative and summative functions. Because of the need to make summative judgments, assessment programs may tend to focus on the period immediately prior to student teaching. However, formative assessment will prove more effective and useful in guiding student development if it is undertaken earlier in the student's undergraduate program and continued during credential programs. Furthermore, subject matter specialists should participate in the summative assessment which results in a recommendation for or against entrance into student teaching.

- ☐ *Formative evaluation provides information regarding areas of relative strength in the candidate's subject matter preparation. It may also help the student re-evaluate the appropriateness of his or her decision to enter teaching;*

- ☐ *Campuses should not require candidates to complete additional course work in the academic field prior to diagnostic evaluation, except for those courses which represent actual deficiencies in formal requirements based on transcript evaluation. However, campuses may use formative assessment competencies which are equivalent to waiver course content requirements;*

- ☐ *Formative assessment should be followed by student advisement which includes clear and reasonable alternatives for making up deficiencies and satisfying subject area competency requirements;*

- ☐ *Summative evaluation is the final decision made in each case to determine whether a student is adequately prepared in the subject matter competency areas and ready to begin student teaching. Opportunities for formative evaluation should precede this decision when possible. Criteria for summative evaluation should be clear. Procedures should be established for students who may wish to appeal negative decisions.*

Areas of Competence

The Workgroup on Assessment of Subject Matter Competency of Prospective Elementary Teachers developed sample competencies that may useful as a basis for assessing the subject matter knowledge, understandings, skills, and attitudes of prospective elementary teachers. These competencies are organized into two broad categories: 1) Generic Competencies which are fundamental to most disciplines, and 2) Subject Area Competencies which are organized by the discipline groupings defined in the newly developed CTC standards for multiple subjects waiver programs.

The workgroup wishes to emphasize that the competencies that follow are merely samples, developed by workgroup subcommittees for the purpose of stimulating discussion and serving as a resource to campuses developing their assessment process. Although this organizational scheme was utilized by the workgroup, campuses might choose quite different structures based on their faculty's judgment and preferences.

However, the workgroup believes that to assess subject matter competency in the multidisciplinary liberal studies program, it is essential to identify those "generic competencies" that underlie many disciplines and are germane to all parts of the program. The decision to begin this assessment guide by identifying generic abilities reflects the view that elementary school teachers must acquire certain fundamental building blocks if they are to become well-educated persons able to educate children.

The section on Generic Competencies will, therefore, focus on knowledge, understandings, skills, and values and attitudes that transcend disciplinary borders but are integral components of each discipline. They represent the kinds of learning that remain after the best memorized material has faded from the mind and are marks of the liberally educated person.

In organizing the section on Subject Area Competencies, the workgroup chose to develop sample competencies reflecting the areas of study outlined in the CTC standards for multiple subjects waiver programs. However, it is important to recognize that some competencies extend from one subject area to another and across disciplines within the same subject area. The teaching and learning of a particular competency may take place within courses offered by several departments and should not necessarily be associated with one academic department. For example, competencies developed for the subject area of Human Growth could be part of the content of courses offered by Psychology, Child Development, Biology or Physical Education departments.

Competencies developed for the Social Science subject area could be covered in Economics, History, Sociology or other Social Science courses or may be associated with the Humanities subject area.

The sample generic competencies and sample subject area competencies for Language, Social Science, Mathematics, Science, Humanities, Visual and Performing Arts, Physical Education and Health, and Human Growth and Development developed by the Workgroup on Assessment of Subject Matter Competency of Prospective Elementary Teachers follow.

Generic Competencies

I. Understandings

A. Understands that knowledge is not the mere accumulation of facts, but rather, its coherence depends upon its organization in such structures as theory, metaphor, and paradigm;

B. Understands that any phenomenon can be understood in different ways through the concepts and methods of different disciplines, thereby being open to redefinition as it is approached through successive perspectives;

C. Understands that application of knowledge is related to and derived from theory, often bringing together separate areas of knowledge and enlightening each, but application is at the same time different from theory and subject to different standards of evaluation;

D. Understands that knowledge is meaningful only in contexts, of which the human context in its many varieties (e.g., nationality, culture, gender group) is one of the most important;

E. Understands that knowledge is historical and cumulative, having developed gradually across time in ways which are specific to each discipline, and is potentially time-limited, subject to revision and replacement as new knowledge supersedes old.

II. Skills

A. Communication Skills

1. Uses clear and intelligent expression, both oral and written;

2. Adapts communication content and style for a variety of purposes such as interpretive, analytical, persuasive, and quantitative;

3. Uses appropriate language and vocabulary in a given context and for a given audience;

4. Expresses ideas in a variety of forms such as written, oral, symbol, visual, mathematical, non-verbal.

B. Thinking Skills

1. Observes, hypothesizes, compares, contrasts, generalizes, organizes, connects, relates, infers, and applies;

2. Generates a variety of ideas;

3. Engages in lateral, divergent and relational thinking, in addition to linear, convergent, and discrete thinking;

4. Recognizes biases and flaws in reasoning and knows how to formulate and justify a given position;

5. Recognizes the social, cultural, value-laden context of information, events and ideas and is able to test these against other differing contexts.

C. Learning and Investigative Skills

1. Returns to previous learning to re-evaluate and integrate knowledge and experience;

2. Identifies and locates sources of information;

3. Uses research and evidence as well as reasoning and personal judgment;

4. Knows sources of information, including academic and community resources;

5. Knows about relationships among disciplines, sub-disciplines, and inter-disciplinary areas.

III. Values and Attitudes

A. Demonstrates an intrinsic belief in justice, the morality of human dignity and rights, and individual integrity;

B. Demonstrates an excitement about inquiry and a commitment to pursuing the "broader truths";

C. Demonstrates a belief in learning as a lifelong process;

D. Demonstrates an acceptance of responsibilities of citizenship in a democratic society and a world of differing views;

E. Demonstrates an active appreciation of diversity and searches for connections across differences.

Descriptions of competencies in the individual subject areas follow.

Language Arts

While appreciation, joy, and love for language and literature are difficult to assess, they serve as a foundation for the following competencies.

I. General Competencies

A. Is able to speak and write clearly and effectively;

B. Understands the reciprocal relationship between the language arts (reading, writing, speaking, and listening) and human interaction in endeavors such as problem-solving, decision-making, advocacy, establishment of social values;

C. Understands the role of language in critical and creative thinking.

II. Specific Competencies

A. Is familiar with geographical and social variations in language usage. Knowledge of the cultural basis for language may be acquired through the study of a foreign language;

B. Recognizes the imaginative use of language and demonstrates ability for creative expression, e.g., creative writing, storytelling, interpretive reading, etc.;

C. Understands the stages of the composing process and is able to evaluate and critique constructively the form and content of oral and written communication;

D. Is familiar with fundamental literary concepts such as characterization, imagery, plot, point of view, etc., and is able to recognize literary concepts in various genres as appropriate;

E. Is familiar with literature of many ethnic sources; knows how it reflects ethical, aesthetic, cultural, and political values; and understands how it helps in the interpretation of human experience;

F. Knows the structure of the English language and is able to model the conventions of standard English;

G. Knows the principles of first and second language acquisition and development.

Social Science and History

The student needs to learn the fundamental concepts and principles that underlie the study of history and the social sciences. This means that students need to develop basic understanding of the dynamic structure, assumptions, heuristics, and the ways of understanding experience that these disciplines bring. The four general competencies are expected to be learned as they appropriately apply to analysis of each of the specific competencies.

It is believed that these competencies may be acquired through a carefully structured curriculum that includes the study of History and several (not necessarily all) of the usually recognized Social Sciences (Anthropology, Economics, Geography, Political Science, Psychology, and Sociology). While the structuring of the following competencies assumes a close relationship between History and the Social Science disciplines, a clear conceptual separation of the field of History (and its competencies) from the other disciplines (and their competencies) may be thought more appropriate by some campuses.

I. General Competencies

A. Understands the forces and dynamics that have influenced the evolution and current state of human cultures and institutions;

B. Recognizes both the *universal* features of culture and history and the *diversity* within and between nations and peoples;

C. Understands the behavior of individuals, small groups and social institutions, and the interrelationship among individuals, groups and social institutions in a global society;

D. Understands the essential theories and methods to analyze and make informed judgments about society.

II. Specific Competencies

The above general competencies should be applied as appropriate to the following, more specific content objectives. These objectives need to be addressed, wherever appropriate, in a comparative and integrative analysis of California, the United States, and/or world history and culture. Whether the general knowledge grows out of the more specific study or whether the specific grows out of the general will vary. There is no expectation that each student's program will cover every competency.

A. Knows major historical and cultural events and movements;

B. Understands political institutions and political values, including the responsibilities of citizenship;

C. Understands the characteristics of social organizations and culture, including consideration of class, race and gender;

D. Understands the impact of culture and society on individual behavior and social relations, including patterns of prejudice, stereotyping, and discrimination;

E. Knows major economic concepts and practices;

F. Knows geographical features and characteristics of human settlement, culture, and human/environment relationships;

G. Understands the impact of changing technology and science on individuals and society;

H. Understands the interaction of culture and nations in the world, particularly between Western and non-Western societies.

Mathematics

Prospective elementary school teachers need to know substantially more mathematics than that contained in the curriculum of the elementary schools. In addition to mastering specific mathematics content, prospective teachers must develop an appreciation for the power and beauty of mathematics and understand its role in an ever-increasingly technological world.

The competencies developed for this document provide prospective teachers a basis for teaching the content contained in the *Mathematics Framework for the California Public Schools Kindergarten Through Grade Twelve* (California State Department of Education, 1985). They are derived from the work of the National Council of Teachers of Mathematics (NCTM, 1981) and the Mathematical

Association of America (CUPM, 1983). An important summary of these organizations' recommendations is contained in the *Mathematics Framework* (California State Department of Education, 1985, pp. 43-45). Additional competencies reflecting the most recent changes in the elementary school curriculum also are included.

A competency regarding the prospective teacher's attitude toward mathematics was not included. Ideally, faculty should determine whether those individuals entering student teaching have an openness to learning mathematics, appreciate the power of mathematics, and are enthusiastic about communicating the variety of ways in which mathematical problems can be solved.

I. General Competencies

A. Problem Solving

1. Identifies, develops, and solves problems that involve the mathematical concepts and principles listed in these competency areas;

2. Identifies and demonstrates appropriate problem-solving strategies;

3. Identifies and uses appropriately in problem solving and exploring mathematical concepts the most appropriate tool or technique, selected from estimation, paper and pencil, or calculator or computer.

II. Specific Competencies

A. Prenumber Concepts

Illustrates non-numerical concepts such as attributes, classification, ordering, and sets.

B. Whole Numbers and Their Operations

1. Illustrates and explains number and numeration concepts such as cardinal and ordinal numbers and place value;

2. Explains and develops the usual algorithms for the four basic operations with the whole numbers and illustrates these operations using appropriate models and thinking strategies;

3. Recognizes other algorithms for the basic operations and explains them, using appropriate models and properties of the number system.

C. Geometry

1. Identifies examples in the environment of simple geometric shapes and their properties;

2. Develops basic relationships in two dimensions, such as parallelism, perpendicularity, and congruence, and models them with examples from the environment;

3. Models relationships in three dimensions and illustrates their properties using common objects;

4. Develops basic concepts and properties of geometric transformation, such as rotation, reflection, translation, and symmetry, as well as tilings of the plane.

D. Measurement

Uses standard units of both the metric and English systems and nonstandard units, such as paper clips, erasers, and body measures, in measuring length, perimeter, area, capacity, volume, mass, weight, angle, time, and temperature.

E. Estimation

Identifies and uses estimation strategies in solving problems involving measurement and computations and evaluates the reasonableness of results.

F. Algebraic Concepts

1. Uses mathematical terms and symbols appropriate to different levels;

2. Describes patterns and recognizes rules for relations, including functions.

G. Historical and Cultural Perspectives

Describes the historical and cultural significance of some of the major mathematical concepts and principles addressed in these competencies. Also, demonstrates some knowledge of the contributions made by various cultures to mathematics.

H. Number Theory

Explains and uses the concepts of prime and composite numbers, divisibility rules, least common multiple, and greatest common divisor.

I. The Real Number System and Its Subsystems

1. Explains the concepts of fractions (including decimals), integers, ratio, proportion, and percentage, using appropriate models;

2. Explains and develops the standard algorithms for the four basic operations for integers, positive and negative rational numbers (including decimal notation), and real numbers.

J. Probability

Solves basic problems involving probability and makes predictions using relative frequency experiments, methods of counting, sample spaces, joint events, independent events, and simulation techniques.

K. Statistics

Solves basic problems involving organization and presentation of data through tables and graphs, roles of scales and possible bias in graphs, and analysis of measures of central tendency and dispersion.

Science

Science instruction for the Universities' Liberal Studies programs focuses on the major concepts, structures, and process/thinking skills of physical, earth and biological sciences. Laboratory components of the instruction include manipulative skills, safety procedures, and equipment usage. Applications of science to everyday life — technology, citizenship, relationships to other disciplines — are integrated into the conceptual framework. The six standards for Elementary Science Teachers recommended by the National Science Teachers' Association (1983) and the curriculum recommended by the California *Science Framework Addendum* (1984) provide appropriate guidelines for the science component.

Upon completion of the program, Liberal Studies majors should have a general knowledge of the basic concepts/content of science and the ability to select, locate, and understand particular topics of interest; be able to demonstrate experimental processes as well as laboratory skills; and have an appreciation for, as well as an understanding of, scientific process skills as tools for critical thinking and problem solving.

I. General Competencies

A. Laboratory Skills

1. Uses scientific equipment, instruments, and materials;
2. Conducts experiments both for exploration and verification;
3. Performs demonstrations;
4. Practices laboratory safety.

References

Commission on Undergraduate Program in Mathematics: Panel on Teacher Training. *Recommendations on the Mathematical Preparation of Teachers, MAA Notes Number 2.* Washington, DC: The Mathematical Association of America, 1983.

Commission on the Education of Teachers of Mathematics: *Guidelines for the Preparation of Teachers of Mathematics.* Reston, VA: National Council of Teachers of Mathematics, 1981.

California State Department of Education. *Mathematics Framework for the California Public Schools Kindergarten through Grade Twelve.* Sacramento, CA: California State Department of Education, 1985.

B. Process Skills

1. Uses process/thinking skills (*Science Framework Addendum*, pp. 4-5);

2. Interprets and generates graphs, tables, and other mathematical models;

3. Demonstrates problem-solving skills (*Elementary Subject Matter Preparation Guidelines*, August 1987 draft, p. 12);

4. Uses experimental methods to develop critical thinking skills and proofs.

C. Understandings That Synthesize the Elements of Science

1. Understands the relationships between science and society:

   a. How scientific advancement and technology affects society.

   b. How scientific concepts are applied to everyday life;

2. Knows the historical development of science, including biographies of major scientists;

3. Understands the use of scientific models to clarify abstract concepts;

4. Understands ethical and moral issues and values as they relate to science;

5. Is familiar with the variety of careers in science and the relationship of science to other careers;

6. Is familiar with the integration of scientific advancements and technology into other disciplines.

II. Specific Competencies

A. Knowledge of Scientific Concepts

1. Is knowledgeable about Biological Sciences, the nature of living systems, including cells, genetics, evolution, plants, protists, animals, human beings, ecosystems;

2. Is knowledgeable about Earth Sciences, the nature of the earth and the universe, including astronomy, geology and natural resources, meteorology, oceanography, physical geography;

3. Is knowledgeable about Physical Sciences, the nature of matter and its physical interactions, including matter, mechanics, energy sources and transformations, heat, light, electricity, magnetism, and sound;

4. Is knowledgeable about topics as developed in the *Science Framework Addendum*.

Humanities

The humanities focus, by definition, on the human condition and must treat that which is human, or humane, in all of its manifestations. Classical and modern languages, literature, art, crafts, and larger human creations such as societies, religions, philosophical and ethical systems compose the field. Rather than being a sum of these discrete areas, the study of humanities is truly interdisciplinary or, in essence, comparative. The study of a culture, text, person, work of art, system of thought or belief is, in other words, engaged in not so much for its own sake as for the sake of illuminating the whole context within which the particular expression of humanity occurs.

At the core of the discipline is the notion of a liberally educated and value-oriented person, a person who can rescue discrete elements from their insularity, integrate components of a university education, and apply "the best of what has been thought and said" to their own lives.

I. General Competencies

A. Compares ideas and values of paradigmatic societies and cultures to determine the interconnnections among politics, religion, philosophy, and the arts among different cultures at different times, and applies them to current experiences today;

B. Understands the philosophical and historical foundations of human thought and institutions;

C. Has the capacity for moral and critical thought;

D. Understands inductive and deductive logic and their uses in science, language, and daily life;

E. Appreciates aesthetics in literary, artistic, and intellectual achievements;

F. Recognizes the interconnections among art, literature, music, and philosophy and their relevance in contemporary civilization;

G. Knows about the major world civilizations past and present;

H. Appreciates the cultural heritage of Western and non-Western peoples.

II. Specific Competencies

A. Pursues various types of logical arguments, including understanding of logical fallacies;

B. Knows the main features that distinguish art, music, literature, and thought of differing peoples and periods;

C. Knows the various theories of beauty and goodness;

D. Knows of various ethical systems;

E. Understands the principles underlying composition in painting, architecture, music and other arts;

F. Compares humanistic with scientific methods and interpretations;

G. Knows the historical significance and ways of understanding of major world religions;

H. Understands various theories of human existence;

I. Is familiar with Western and non-Western classic texts.

Visual and Performing Arts

"Our goal is not to make every student an artist, but to exploit art as a unique vehicle for developing the individual creative potential of every student. As an open-ended, unrestricted context for thinking and caring, art expands our capacity to perceive, understand and appreciate life. Limited only by the power of our imaginations, art confronts the unknown and attempts the impossible in order to construct new meanings. Art exalts the best and the most that human beings can be: it inspires us to surpass ourselves."[1]

I. General Competencies

A. Understands how the arts function on personal, social and aesthetic levels;

B. Understands the interrelatedness and uniqueness among the arts and across the disciplines;

C. Recognizes that the arts offer opportunities for the development of multiple approaches for communication;

D. Expresses his or her creativity to experience the satisfaction, accomplishment and joy of aesthetic experience through participation in individual and group activities;

E. Is able to bring together materials, ideas and knowledge in intuitive, original ways to create new ideas and works of art;

F. Knows the basic elements of the arts demonstrated through articulation, performance and creation. This knowledge includes basic understanding of concepts, skills, symbols, vocabulary, structural and compositional components, tools and materials;

G. Describes and models a wide variety of arts styles and functions, using a variety of creative strategies;

H. Is able to articulate a personal interpretation of works of art;

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[1]Murray, Jon J., "Art, Creativity and the Quality of Education," *Daedalus*, Vol. 112, No. 3, Summer 1983.

I. Is able to articulate steps in a design process;

J. Is able to discuss the creative process and how the process may differ for different artists working in different contexts;

K. Is able to evaluate and critique a work of art by a beginning artist;

L. Is able to formulate questions which stimulate discussion about the creative process;

M. Understands how viewers and audiences elicit and create meaning from the arts;

N. Understands the interrelationship among the arts and between the arts and ethical, aesthetic, cultural, political and social values;

O. Is able to perceive the world through the arts and to recognize the arts as a source for generating aesthetic perceptions.

II. Specific Competencies

The following competencies may be applied to specific visual or performing arts including art, music, drama, and dance.

A. Is familiar with world history of the art;

B. Knows the historical perspective of the art, including an emphasis on how periods, styles and trends evolve, interweave and are reintroduced and transformed;

C. Is aware of the similarities and differences between and among works of art from different cultural traditions and historical periods;

D. Is familiar with the major works and their creators and a wide variety of comtemporary works;

E. Is familiar with various art media (e.g., painting, sculpture, film, vocal and instrumental music, stage plays, improvisational theatre and dance, etc.);

F. Knows the basic approaches to arts criticism.

Physical Education and Health

I. General Competencies

A. Interrelates Physical Education with the general curricula;

B. Understands ways in which the study of Physical Education fosters critical thinking;

C. Formulates questions which stimulate thoughtful responses to movement problems/ patterns;

D. Understands how movement relates to learning;

E. Identifies the characteristics of human developmental stages and is able to apply them to physical education.

II. Specific Competencies

A. Physical Activity, Movement Skill, Movement Knowledge

1. Demonstrates knowledge of the broad range of physical activity and utilizes the principles of movement;

2. Understands the fundamentals of movement and appreciates the aesthetic and expressive elements of movement;

3. Designs appropriate sequential movement experiences, demonstrating mastery of the process of skill development and integration.

B. Physical Fitness and Wellness

1. Applies the principles, mechanics and concepts of physical fitness and wellness components as they relate to personal health and physical performance;

2. Identifies activities that enhance appreciation of physical fitness and wellness.

C. Social Development and Cross Cultural Understanding

1. Understands the relationship between effective group interaction and cooperating and competing fairly;

2. Perceives, appreciates and accommodates similarities and differences between individuals of varying abilities and backgrounds.

D. Self-Image, Self-Realization and Individual Excellence

1. Explains the significance of a positive body image and self-image and how these may be enhanced through physical education;

2. Conducts a self-appraisal of strengths, interests, experiences, goal setting and perseverance;

3. Identifies equipment, supplies and facilities necessary for various physical education activities.

Human Growth and Development

In the areas of cognitive, social, emotional, language, perceptual, motor and biological development, the student will demonstrate the following competencies.

I. General Competencies

A. Understands significant developmental theories and/or perspectives and their differing implications in explaining development and behavior;

B. Understands the relationships among the various areas of development and its differing perspectives, emphasizing the unity and integrity of development;

C. Recognizes appropriate behaviors and their normal variations at each developmental level.

II. Specific Competencies

A. Recognizes the differing impacts on development and behavior that result from situational/contextual background factors such as:

1. family structure and parent-child relationships,
2. peer group relationships,
3. societal/institutional relationships,
4. environmental circumstances,
5. adult-child relationships.

B. Understands how development might be affected by factors such as:

1. cultural influences,
2. economic influences,
3. ethnic influences,
4. gender influences,
5. generational influences,
6. issues of self-esteem and self-image.

C. Understands how cognitive/intellectual development occurs in such areas as knowledge, skills and understanding thinking processes, styles of learning memory, cultural influence and moral issues;

D. Observes objectively children's behavior in different contexts and relates the behavior to developmental level and to factors that influence the child's performance in school.

Sources of Assessment Information

Information from many sources may be used to assess the subject matter competency of future teachers. The particular assessment procedures will vary from campus to campus depending upon the overall design of the assessment process and the range of skills to be evaluated. It is recognized that certain generic and subject area competencies will be common across various CSU campuses while others will be more diverse. Other factors which will influence assessment design are the proportion of waiver program and non-waiver program candidates to be evaluated, the validity and efficiency of existing assessment procedures, available staff resources and other internal and external influences, responsibilities and constraints. However, regardless of the particular configuration of assessment procedures adopted by any given campus, the following general guidelines should be considered:

I. General Guidelines

A. Assessment Criteria and Evaluation Procedures

Assessment criteria and summative evaluation procedures should be equitably applied to waiver and non-waiver program teacher candidates. Waiver program candidates may participate in more extensive formative or diagnostic assessment, but summative criteria leading to approval or disapproval for entry into student teaching must be comparable for both groups.

B. Formative and Diagnostic Assessment Recommendations

When formative or diagnostic assessment indicates that remedial work is needed, deficiencies should be clearly identified and a specific schedule for reassessment of these competencies should be established.

C. Assessment Procedure Evaluation

The assessment procedure itself should be systematically re-evaluated on a continuing basis. Early in its history these re-evaluations should occur frequently. Responsibility for monitoring the assessment program should be specifically assigned and conscientiously performed. As conditions change, this monitoring process will undoubtedly lead to adjustments and improvements in the assessment program. Therefore, evaluating the assessment system is crucial to its success.

D. Assessment Process and Procedures for Evaluators

The assessment process should provide for multiple evaluators, as well as an array of procedures and sources of information. Variation among evaluator judgments may indicate that criteria are unclear and in need of redefinition, or that the evaluators themselves need training to improve the accuracy and reliability of their judgments, or both. Even if significant discrepancies do not appear, evaluators should check a sample of assessments to be sure that a consistent standard of evaluation is maintained.

E. Assessment Validation Process

To validate the assessment process, a sample of relevant information should be gathered from suitable sources on newly credentialed candidates and their "continued subject matter competency." Results from this "long range" validation will help assure that campus assessment procedures are sufficiently sensitive and properly calibrated.

II. Methods of Assessment Information Gathering

A comprehensive assessment program may utilize many sources of information. Included among these sources are traditional classroom activities, interviews, portfolios, test data, capstone courses and other documentation and activities.

A. Classroom Activities

Traditional activities within existing classes are an important source of assessment information, but one that is primarily applicable to waiver students. Although students with a credential objective may be given some special assignments, many regular classroom activities may provide the opportunity to observe, gather information and assess specific competencies in context. In making assessments based on regular classroom activities, it is important that specific competencies be defined, criteria clearly stated, and that the class assessment activity directly relates to the competency being assessed. Normally, these assessment procedures will be distinct from and more specific than those used to determine course grades.

1. Leading or participating in group discussions;
2. Performing an original work;
3. Writing or speaking on selected topics or in response to a specific question;
4. Writing activities which proceed from initial outline to draft, to revision, to final editing;
5. Producing a synopsis or critique in response to a presentation;
6. Responding to regular classroom assignments and tests which focus on specific competencies. Especially useful would be assignments which require multiple or integrated levels of interpretation and analysis;
7. Group writing exercises and in depth-writing revision exercises;
8. An individual assignment such as a senior project or a project of a cross-disciplinary nature.

B. Interviews

Interviews are best suited for assessing higher level skills, such as the ability to integrate, synthesize, and interpret areas of knowledge. For example, a student might be asked

to discuss ways in which the study of language can foster critical thinking. Other modes of assessment, such as objective tests, are more effective for measuring recall or recognition. In an interview, evaluators can probe student responses. The give and take of the interview provides students an opportunity to demonstrate a variety of skills. Finally, each evaluator should render an independent rating of each competency area to be assessed.

1. Interview questions should be carefully structured to address pre-determined, specific competencies. Interviewers may even be provided with written questions to ensure some degree of uniformity in the interview process. Members of the interview panel may prepare in advance by reading portfolios and reviewing transcripts, biographical statements or other documentation;

2. Students may be interviewed individually or in groups. They may be advised of interview topics well in advance, just prior to the interview or not at all. Interview topics may be described in general terms or students may actually receive copies of the interview questions;

3. The purpose and scope of the interview will depend upon assessment program goals, characteristics and resources, as well as the amount of information available from other sources. Interviews may provide summative assessment in the form of comprehensive competency verification or selected reassessment, or may be primarily formative and diagnostic;

4. In addition to faculty participants, interviews may include advisors, master teachers, cooperating elementary school teachers, student teachers currently in the program, district curriculum specialists, external evaluators or other consultants.

Interviews also provide an opportunity for discussion and evaluation of student portfolios.

C. Portfolios

A portfolio is a collection of student work samples, documents and reports. Portfolios are especially useful for assessing non-waiver students who may not be well known to the faculty. If portfolios are required, students should be given explicit information regarding the materials to be included and adequate time to collect and prepare the documentation. Portfolio content may differ for non-waiver and waiver program students. However, portfolio requirements should be uniform within a given category of students. To assure uniformity and fairness, additional requirements in individual cases should be minimal and carefully justified. Portfolios should be assessed by more than one trained evaluator and students should be told who will have access to their portfolios. Portfolios may contain a wide variety of materials, including those suggested below.

1. Personal writing samples which are self-selected, drawn from assigned categories such as research papers, creative writing, essay, etc., or samples specifically prepared for the portfolio;

2. Observation logs or reports from field experiences or journals;

3. Audio or video tapes in which the student demonstrates performance in selected competency areas;

4. Examples of creative work such as original stories, poems, musical compositions, paintings, etc.

D. Testing

Tests can provide relatively objective assessment of selected subject matter competencies. Before using a test for subject matter assessment, its psychometric characteristics should be evaluated by a person who is knowledgeable about measurement. When using tests, the following principles should be kept in mind.

1. Whether using a locally constructed test or a published standardized test, the instrument should be subjected to item-by-item scrutiny to be sure that its content is appropriate to the competency being assessed;

2. A norm-referenced test may not be suitable for assessing mastery of a given competency since such tests are usually designed to measure a broad range of ability. If a norm-referenced test is used, norm data must be based on an appropriate comparison group;

3. Essay examinations and writing samples should be evaluated by multiple readers who have been trained to assess papers against stated scoring criteria. Essay topics should be pretested and rater reliability should be checked periodically;

4. Performance examinations, such as demonstrations, discussion of issues, or group discussion leadership, should also be assessed in terms of established scoring criteria by more than one trained evaluator;

5. Local tests of any kind must be carefully constructed and thoroughly pre-tested prior to use. Test development is a demanding and time-consuming activity which requires expertise in measurement theory and practice. Faculty members who develop local assessment instruments may need the assistance of measurement and evaluation consultants;

6. State and national standardized testing programs that may be useful for subject matter assessment include: the National Teacher Examination, the California Basic Educational Skills Test, the English Equivalency Examination, the College Level Examination Program, the Graduate Record Examination, the Scholastic Aptitude Test, and published standardized tests in speech and English;

7. Locally developed tests may be used to measure knowledge of the interrelatedness of Liberal Studies, and other specific competencies.

E. A Capstone Course

A capstone course in Liberal Studies might include activities specifically designed to generate a wide range of assessment information. Such a course would probably carry credit, might be team taught and would most appropriately come at the end of the student's subject matter course sequence.

1. In addition to summative evaluation, the course would provide an opportunity to reassess previously identified deficiencies;

2. Assessment activities in the course should cover the entire range of subject matter competencies. Although no single student is likely to require assessment for every competency, a non-waiver program student may need to be evaluated for most of them;

3. Assessment techniques used in the capstone course would likely include abbreviated variants of those embodied in regular courses, and other assessment approaches described elsewhere in this report;

4. In the capstone course, the assessment emphasis would be on verification of competency rather than diagnosis of deficiencies. Nevertheless, some opportunity should be provided for the reassessment of previously identified deficiencies;

5. Finally, the capstone course could provide a focus for subject matter competency assessment. Evaluation procedures themselves could be analyzed and discussed and new approaches tested. These activities would communicate to students that continuing re-evaluation is an important tenet of the teaching profession.

F. Additional Assessment Information Sources

Other important sources of assessment information are found below; however, assessment should not rely exclusively on these sources.

1. Academic Transcripts

Since a student's academic transcript represents the collective judgment of faculty in various disciplines, a review of the transcript may yield useful assessment information. Important considerations in review of transcripts are the breadth of coursework taken, apparent gaps in coursework, level of achievement, and recency of study. The completion of a course should not in itself deem the student competent, nor should the absence of a specific course render the student incompetent. However, the transcript information may indicate the likelihood or lack thereof of competence. In both cases, this information from transcript review should be used in conjunction with other assessment information. In a few instances, it may be possible to directly match some subject area competencies to the curriculum of a particular course. If this is the case, as it might be in mathematics, passage of the course with a specified level of achievement may determine competency.

2. Letters of Recommendation/Performance Ratings

Letters of recommendation and other performance ratings from faculty, supervisors or others familiar with the student's work or academic performance may contribute assessment information. A standardized form may be developed for this purpose to focus evaluation responses on specific subject matter competencies. Another approach might involve circulating a list of students together with a request for faculty comments or ratings.

Models for Competency Assessment

The assessment models which follow have been developed to provide a resource for all campuses as they develop and implement their own assessment process to determine subject matter competence for prospective elementary teachers. These models attempt to illustrate integrated programs of assessment. Features from each model may be incorporated or adapted by campuses or other methods of assessment may be preferred.

The models do have a number of features in common. Each model provides for multiple measures of competency. Each model has a formative and summative phase, although all students subject to the assessment may not take part in the formative phase. Finally, each model provides ways of addressing deficiencies or improving skills which have been identified as weak.

In constructing an assessment model, campuses may wish to consider: a) generic and subject area competencies to be assessed, b) numbers of waiver and non-waiver students to be assessed, c) methods of assessment for generic and subject area competencies, d) an annual assessment schedule, d) field test results, e) available financial support, and f) campus assessment policies. Campuses may wish to approach the challenging task of designing an assessment model by envisioning their ideal assessment program and then planning ways to phase in that model, dependent upon time and financial resources as well as field test experience and other assessment evaluation information.

I. Assessment Model I

This assessment model is intended for those liberal studies waiver program undergraduates and those non-waiver program students who are considering teaching as a profession. The model in its most comprehensive form assumes a native undergraduate, i.e., one indigenous to the campus. However, alternative methods of assessment are included for non-waiver program students including both undergraduate transfer and postbaccalaureate transfer student populations. The model is sufficiently flexible to allow for the assessment of large numbers of non-waiver program students through the use of a cornerstone course and a modular assessment approach (described below). In fact, those campuses that find end-of-course assessment unwieldy or inappropriate for whatever reason could employ the cornerstone/modular assessment approach for all subject matter assessment.

The model has the following major components:

A. Specific subject matter competencies assessed during and at the end of relevant courses within the liberal studies curriculum. Methods include instructor assessments (either ratings or checklists) of students' specific competencies, student responses to competency items contained in course and/or departmental examinations, papers/reports/class projects, videotapes, etc. Documentation of competencies assessed through coursework could be maintained in a student "portfolio" for use in later review.

B. Generic competencies assessed through a one-to-one unit capstone course that serves as the culminating experience within the liberal studies program, prior to the beginning of student field placement.

C. A cornerstone or sampler course offered for transfer and undergraduate and postbaccalaureate students who need to demonstrate subject matter competencies in some or all areas (course could be offered through Extended Education). Students are assessed on a sample of competencies in each area and if their performance is satisfactory, they advance to the capstone course. For those subject areas where evaluation is unsatisfactory, modular assessment (see D) or retaking of the appropriate course or courses are options.

D. Native waiver program students with marginal or unsatisfactory evaluations in specific subject matter competencies, and transfer students who need to demonstrate specific competencies (i.e., their performance in one or more areas of the sampler/cornerstone course was unsatisfactory), enroll in modular assessment courses (1 to 4 units) in order to demonstrate competencies in needed areas. In fact, competencies could be grouped so that modules combine to form subject matter areas or sub-areas. Alternatively, regular courses which address those competencies can be taken or retaken. A great deal of the modular assessment, particularly in areas which lend themselves to paper and pencil methods, could be accomplished through an Assessment Center.

This model places a premium on courses being structured so that competencies are directly addressed within course objectives and, therefore, competencies can be assessed within the course framework. It also places a responsibility on the liberal studies coordinator to orient or train subject matter faculty to use an end-of-course assessment system (e.g., rating or checklists of competencies having been met) in a reliable manner and a responsibility to develop course assignments with competencies in mind. In addition, advisors and students will have responsibilities for building the student's portfolio or "dossier" which includes evidence of competencies having been met.

The modular assessments, used to reassess students whose competency levels were initially unsatisfactory, or as one alternative to assess competencies not previously assessed, need to be described. They would consist of standardized sets of assessment materials and procedures such as paper and pencil tests, video demonstrations, and oral and written exercises intended to measure relatively narrow sets of competencies within a particular subject matter area (e.g., materials and exercises for testing competency in areas D, Measurement, and E, Estimation in Mathematics). Presumably, materials could emerge from appropriate liberal studies courses, departmental efforts, and "outside sources." These modular assessment course materials would also be used to sample competencies in the cornerstone course.

The ideal situation from an assessment perspective would consist of sets of assessment materials that could be used interchangeably regardless of the assessment setting: the subject matter course, cornerstone course, or modular assessment conducted through an assessment center. It is recognized that this approach can be effective only if there is a substantial philosophical and financial commitment by the campus and a pedagogical commitment by the faculty.

ASSESSMENT MODEL I

POINTS OF ASSESSMENT	ASSESSMENT STRATEGIES	COMPETENCY ASSESSED	PURPOSE (Formative, Summative, Cumulative)	STEPS TO REMEDY DEFICIENCIES	COMMENTS
NATIVE UNDERGRADUATE STUDENTS					
While enrolled in Liberal Studies Subject Matter Courses	o End of course ratings by instructor of student's skill, knowledge, and mastery level of competencies relevant to each course.	Subject matter knowledge, skill, understanding, application.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Because courses will often cover more than the competencies, ratings may cover different if not fewer criteria than those used for course grading. (Math courses may be an exception.)
	o In-course examinations, papers, reports.	Subject matter knowledge, skill, understanding, application.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Item pools will need to be constructed and evaluated.
	o Demonstrations & Projects	Integrative skills knowledge, skill, understanding, application.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Reliable prototypes will need to be developed.
Before beginning student teaching	o Capstone course	Generic competencies. Integrative skills.	Summative.	Panel review.	Portfolio review. Course will require innovative instructional format, including fast pacing and high level of student participation.

POINTS OF ASSESSMENT	ASSESSMENT STRATEGIES	COMPETENCY ASSESSED	PURPOSE (Formative, Summative, Cumulative)	STEPS TO REMEDY DEFICIENCIES	COMMENTS
UNDERGRADUATE TRANSFERS					
Upon matriculation	o Cornerstone course	Subject matter areas and appropriate competencies for which transfer credit has been awarded.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Team-taught three hours of assessment offered weekly by one of the eight subject matter specialists (faculty). Competencies within each subject matter area will be sampled for assessment.
While enrolled in Liberal Studies Subject Matter Courses	o End-of-course ratings by instructor of student's skill, knowledge, and mastery level of competencies relevant to each course.	Subject matter knowledge, skill, understanding, application.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Because courses will often cover more than the competencies, ratings may cover different if not fewer criteria than those used for course grading. (Math courses may be an exception.)
	o In-course examinations, papers, reports.	Subject matter knowledge, skill, understanding, application.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Item pools will need to be constructed and evaluated.
	o Demonstrations & Projects	Integrative skills knowledge, skill, understanding, application.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Reliable prototypes will need to be developed.
	o Capstone course	Generic competencies, Integrative skills.	Summative.	Panel review.	Portfolio review. Course will require innovative instructional format, including fast pacing and high level of student participation.

POINTS OF ASSESSMENT	ASSESSMENT STRATEGIES	COMPETENCY ASSESSED	PURPOSE (Formative, Summative, Cumulative)	STEPS TO REMEDY DEFICIENCIES	COMMENTS
POST BACCALAUREATE					
Upon matriculation	o Cornerstone course	Subject matter exams and appropriate competencies for which transfer credit has been awarded.	Summative if student's evaluation levels are satisfactory.	Retake courses, Remedial courses, Modular assessment.	Team-taught three hours of assessment offered weekly by one of the eight subject matter specialists (faculty). Competencies within each subject matter area will be sampled for assessment.
	o Capstone course	Generic competencies, integrative skills.	Summative.	Panel review.	Portfolio review will require innovative instructional format, including fast pacing and high level of student participation.

II. Assessment Model II

A. Formative Evaluation

1. Formative evaluation occurs with native waiver program students and with undergraduate transfers;

2. Formative evaluation occurs as soon as the student declares a Liberal Studies major. Ideally, formative evaluation is part of general education advising. Formative evaluation begins no later than the end of the sophomore year or the beginning of the junior year;

3. The advisor is responsible for formative evaluation. During the first advising session the advisor informs each major of the assessment program; the student is given a copy of the program's Assessment Handbook. The advisor explains carefully the competencies expected, the procedures for assessment, and the other requirements. The advisor and the student examine the student's record to identify possible weaknesses. After identifying weaknesses, the advisor and the student agree on actions appropriate to correct those. Such corrective actions could be additional coursework, self-study, development of aesthetic interests, etc.

B. Summative Evaluation

1. Summative evaluation occurs during the semester/quarter prior to admission to student teaching. In the case of post-baccalaureate transfer students who plan to enter the campus credential program, the assessment occurs during the quarter the student arrives on the campus and requests certification of subject matter competency. To accommodate these students, who often arrive during the summer, the college will offer a summer school assessment option through the Division of Extended Studies;

2. Summative evaluation will occur in three phases. All students wishing to demonstrate subject matter mastery will be required to complete the three phases. The Liberal Studies Program Office provides all interested students with a booklet that explains the process;

3. Students who decide to undergo assessment will register in a three-semester unit assessment seminar. Enrollments provide the resources to support the assessment program;

4. Phase I requires the student to demonstrate minimum competence in certain areas identified by the campus program committee. The student accomplishes this by providing evidence of:

   a. Passage of CBEST,

   b. Satisfaction of the upper division writing requirement at the level stipulated by the Liberal Studies Program,

c. Minimum competency (e.g., grade of C) in the discipline areas deemed essential by the Program (e.g., developmental psychology, mathematics);

5. In Phase II the student compiles a portfolio that demonstrates minimum competency or facilitates subsequent assessment. In the portfolio the student inserts:

   a. Official transcripts: the cumulative grade point average must be no more than .35 below the minimum GPA required for admission to the credential program,

   b. Recommendations from faculty who instruct courses in the areas deemed essential by the Program Committee; transfer students will be asked to provide these to the extent feasible,

   c. A non-monitored essay on a topic chosen by the Program, which allows the student to demonstrate his/her education philosophy and career objectives,

   d. Selected course material (including examples of artistic activities) that illustrates the quality of the student's work,

   e. A monitored essay on a topic that requires the student to demonstrate the ability to integrate disparate material from the major;

6. The Third Phase involves an Oral Interview with 3-4 faculty who represent the core disciplines of the major.

   a. The areas to be assessed include language, literature, mathematics, science, social science, history, humanities, the arts, physical education, and human development,

   b. While each student is assessed in all areas of the major, special attention is focused on areas in which the transcript or essays show weaknesses,

   c. The assessment is criterion-referenced; the presumption is that students who entered the assessment will succeed in demonstrating competency,

   d. Students who fail any or all parts will be offered suggestions on how to build competency in the relevant areas,

   e. Students who believe the assessment procedure to be flawed are informed of an appeals process.

ASSESSMENT MODEL II

POINTS OF ASSESSMENT	ASSESSMENT STRATEGIES	COMPETENCY ASSESSED	PURPOSE (Formative, Summative Cumulative)	STEPS TO REMEDY DEFICIENCIES	COMMENTS
Semester/Quarter Advising Session	Review of academic performance and discussion of student command of required material.	All	Formative	Individualized	
Semester/Quarter Before Admission to Credential Program	CBEST	Reading	Summative	Repeat	Students to take as early as possible in their schooling but unable to proceed through assessment before passing CBEST.
	Upper Division Writing Test	Writing	Summative	Repeat	Students to take as early as possible in their schooling but unable to proceed through assessment before satisfying this requirement.
	Non-Monitored essay	Social Science	Summative	Coursework	
	Monitored essay	Understanding of and sensitivity to minority cultures.	Summative	Coursework	
	Two (2) hour interview	All other	Summative	Coursework or self-guided learning.	

Recommendations Related to Resource and Administrative Issues

State support should be sought by the Office of the Chancellor for the development and implementation of assessment of subject matter competency for prospective elementary teachers. The timetable for seeking monetary aid as outlined in these recommendations is suggested as a complement to meet program reviews by the Commission on Teacher Credentialing based on the new standards and guidelines for elementary subject matter preparation. A successful effort to persuade the Legislature to fund a campus-based, multiple measures competency assessment program will probably require demonstration that campuses have already developed or have made considerable progress in developing assessment processes; legislative funding could most likely be sought at the implementation level.

These recommendations suggest administrative support and guidance, propose a two-stage development process, including dissemination of information across campuses, and propose an implementation plan. For funding purposes, Development: Planning (1988-89) and Development: Pilot Programs (1989-1990) require support from the Chancellor's Office. Implementation (1990-Future) should be an ongoing financial commitment by the Legislature and the state.

- *State resources are necessary for the development and implementation of a formal process to assess prospective teachers' subject matter competency prior to entry into the professional education program's supervised teaching experience. Such support is necessary whether this assessment is campus based or limited to a standardized, statewide examination of subject matter knowledge.*

- *Policy makers advocating a state-standardized test of subject matter knowledge for prospective teachers acknowledge the need for state support for test development. However, it is likely that credential candidates will have to bear the costs of test administration through fees, such as those charged for the California Basic Educational Skills Test (CBEST).*

- *As campuses develop and implement assessment processes without additional support, questions relating to resources and administration are likely to be an integral part of their considerations. The recommendations found below recognize that state funding is not at present specifically provided for development or implementation of subject matter competency assessment by academic departments. The following recommendations pertain to administration, development and implementation of assessment procedures.*

I. Administration

A. A universitywide administrator should be designated as responsible for overseeing the development and implementation of the multiple subjects assessment program, related campuswide committees, timelines, funding, and clerical support, etc.

B. A multiple subjects assessment program coordinator who represents one of the ten subject areas should be designated to carry out the development and implementation plans and work directly with campus committees and others charged with those tasks.

C. A committee composed of faculty members representing subject areas to be assessed should be charged with working with the multiple subjects assessment program coordinator to implement the assessment program. It is appropriate for one person to represent more than one area and for others on the campus, such as education faculty and those with expertise in assessment, to be involved. Campuses may wish to establish some general guidelines and reviews for area processes. If so, this committee could be charged with development of these policies.

D. Each assessed area could designate a member of the faculty to be primarily responsible for managing the area's assessment process.

E. Each campus should provide for an appeals process should a student wish to challenge the results of the assessment.

F. Campuses that will be assessing large numbers of students may wish to establish an Assessment Center which could provide common clerical and recordkeeping assistance, facilities, proctoring service, video taping and other services to all participating areas, thus reducing costs. Fees could support the overhead costs of such a center.

G. A system resource center to provide collection and dissemination of information regarding assessment methods, instruments, and experiences would be helpful, especially in the development stage.

II. Development: Planning

A. The planning phase (1988-1989) involves setting up the administrative teams, resources, subject area collaboration on developing a pilot project model, and submitting the model for further funding, should support be available.

B. Lottery funds may be an excellent source of support for one time assessment development and piloting of assessment processes. (Lottery funds are inappropriate for long term implementation support.) Lottery funds allocated to the campuses as Discretionary Funds could be sought for this purpose.

For 1988-1989, system lottery funds could be allocated to campuses specifically for further development of assessment models. A primary basis for allocation should be the number of waiver programs on the campus. Funding might range from $50,000 to $100,000 per campus.

C. Assigned time could support development of the assessment process. For instance, a faculty member could be assigned three WTU'S for a semester to coordinate the development effort and a development committee.

D. Faculty members of an assessment development committee could serve as a part of their regular committee assignments or could be allocated some release time by the university.

E. Campuses could develop proposals for private funding that may support assessment development processes and, possibly, related research.

III. Development: Pilot Program

A. The proposed pilot program, developed in 1988-1989, could be submitted to the Chancellor's Office for funding during 1989-1990 should funds be available. Representative pilot programs could be selected using a variety of criteria such as a large, medium, and small sized campuses or by the proportion of waiver and non-waiver students in a program.

B. A one-year pilot program can only be assessed in terms of its administrative aspects. Long term implementation of a program with suggested ongoing funding by the legislature better lends itself to evaluation of assessment competencies and student outcomes.

C. Evaluation of the pilot programs could occur in part after one year, and information or strengths and weaknesses could be disseminated to other campuses to aid in decision making and implementation of assessment programs.

D. Pilot programs may employ the same funding methods outlined in Development: Planning.

IV. Implementation

A. Sharing pilot program results across campuses could aid in the implementation of assessment programs by 1990, which will coordinate with the new Commission on Teacher Credentialing Standards and proposed implementation plan. Implementation requires ongoing funding. It is recommended the Legislature provide that funding.

B. Assigned time and committee work could be devoted to assessment implementation. For instance, a campus department might provide three-six WTU's for the coordinator of a standing assessment committee. Members could serve as a part of their regular committee assignments.

C. It is recommended that a minimum of two assessors be utilized for the purpose of assessing activities. Some ways of supporting this may be through assigned time or fees generated through the assessment program.

D. Assessment processes could be developed that rely in part on utilization of extra-campus assessors who possess the appropriate expertise, such as exemplary public school teachers, school district curriculum specialists, and professional association members, who may be willing to serve at no cost to the campus or with minimal stipends which could be supported by assessment fees.

E. Possible sources of supporting the program include the following:

1. A course could be established for integrated experiences and assessment purposes. Dependent upon the depth and breadth of procedures, this course could be taught as supervision, activity, or activity laboratory. For example, one faculty position could accommodate 90 to 100 students per term (six FTES assuming one credit unit per student).

2. On some campuses and for some students, integrating specifically designed assessment activities within one or more required waiver program courses could reduce costs to the campuses. Perhaps these activities or common assessment assignments could be conducted in several courses each year or a student in the waiver program could be assessed over a period of time by several faculty members teaching waiver program courses.

3. Many students could undergo assessment through a specially designed course offered by extended or continuing education, such as summer session for students wanting to enter student teaching or the credential program in the fall term. It should be kept in mind, however, that an extension course cannot be "required" of any student.

4. Students may be required to pay an assessment fee of up to $25, which would be deposited in a revolving trust fund operated similarly to the account established for the upper-division written English tests on many campuses.

Recommendations for Advising

Advising, broadly defined, is providing accurate and timely information and advice to potential teachers and others pursuing the diversified curriculum. This includes making information available within the community, especially at schools and colleges, as well as advising individual students. It involves coordinated efforts of many individuals throughout the educational system. Effective advising of prospective teachers depends upon early identification of candidates, information about teaching and teacher preparation encourages early self-selection.

I. Student Information Needs

Students need information on the whole educational and teacher preparation process. Thus responsibility for advising undergraduates must involve faculty in the credential program as well as in the diversified academic program. Information should be provided as early as possible on the following:

- ☐ *Liberal Studies major/program requirements;*
- ☐ *Ways to compensate for current areas of weakness through course selection;*
- ☐ *Campus assessment process;*
- ☐ *Notification that a different assessment may be required for admission to credential programs on other CSU campuses;*
- ☐ *Requirements for admission to the credential program and application procedure for admission;*
- ☐ *Description of the credential program;*
- ☐ *Description of other credentials and how they relate to the multiple subjects credential (i.e., coursework for a supplemental credential may be included in the multiple subjects program; multiple subjects credential is required even if a specialist credential is the ultimate goal).*

II. Ways of Disseminating Information to Students

A. Declared Students:

- ☐ *University catalog and Liberal Studies Guide (both must include information about assessment);*
- ☐ *Introduction to the program at campus orientation sessions or other meetings for this purpose;*
- ☐ *Required course providing foundation for an interdisciplinary program;*
- ☐ *Newsletters;*

- ☐ *Advisors, advising centers;*
- ☐ *Career counseling center;*
- ☐ *Community college faculty and counselors;*
- ☐ *Student organizations;*
- ☐ *Visible Liberal Studies Office or Center;*
- ☐ *Faculty teaching courses identified with the Liberal Studies Program;*
- ☐ *College/School of Education Offices.*

B. Reaching potential majors/credential candidates. Many of the above plus:

- ☐ *High school and elementary school teachers;*
- ☐ *High school counselors;*
- ☐ *Contacting students who indicate a credential objective on information sheet at university registration.*

III. Coordination

It is impossible to use the people mentioned above effectively unless there is a concerted effort to inform and involve them.

- ☐ *A program coordinator should be responsible for assuring adequate and accurate advising.*
- ☐ *Faculty teaching key Liberal Studies courses should be made aware of the whole program and where students can get information. They are often seen as Liberal Studies professors who can answer questions about the program, but many (most?) know little about the program.*
- ☐ *Community college faculty and counselors are an essential part of the information network as well as the instructional program on campuses with a large number of transfers. CSU faculty should develop relationships with local community college faculty to assure course comparability and accuracy of program information and to make community college faculty active participants in a teacher preparation team. Community college faculty and counselors can play an important role in identifying and recruiting potential teachers, especially minorities, if they are involved and well informed.*
- ☐ *High school and elementary teachers are often seen as sources of information about career preparation. They can make an important contribution in the early identification of potential teachers as well as facilitate their entrance into and progress through the program by providing accurate information about the whole credential process. Liberal Studies and/or education faculty should be encouraged to meet with faculty and students at local high schools or meetings of teachers organization — especially when assessments are introduced.*

IV. The Adviser's Role

- *Ideally students will work with a single adviser from the time they declare a Liberal Studies major at a CSU campus. If the adviser is not in the student's area of concentration, the student should be encouraged to consult a faculty member in that discipline as well. The latter must understand the goals and organization of the Liberal Studies program.*

- *Advisers should have faculty consultants in each discipline who can give advice on courses in the discipline. These individuals must understand the Liberal Studies program.*

- *Advisers may be involved in assessment of students' subject matter competency. They also play an important role in assuring student compliance with the assessment procedure, for example, in building a portfolio.*

- *Where possible, the roles of adviser, instructor and assessor should overlap, providing several interrelated bases for assessment of students.*

- *Advisers must keep complete and accurate records of student progress, including dates students were informed of requirements or deficiencies.*

- *A program coordinator should be responsible for assuring adequate and accurate advising.*

V. Support Needed

The following are *essential* for the recommendations above to be carried out at even a minimal level:

A. On Campus –

- *Adequate (realistic) compensation for advising, with reasonable limits on the number of students per advisor;*

- *Recognition of advising role in promotion and tenure decisions;*

- *Adequate space, if advising is done in a center; drawer space for those advising in academic offices;*

- *Adequate clerical and/or computer support.*

B. Off Campus –

- *Support from CTC, Chancellor's Office, and other educational bodies for disseminating information and coordinating efforts;*

- *Support specifically for annual meeting of Liberal Studies Coordinators.*

VI. The Reciprocity Issue

The workgroup debated the question of whether the campus which trains the student or the campus which accepts a student into the credential program is or should be responsible for assessing subject matter competence. We understand the interest a receiving campus has in assuring quality of candidates, but at the same time we recognize that it is probably easier for the faculty on the campus where the student completed her/his work to assess that work. We suggest that campuses, especially those in the same general area (e.g., the Bay Area, the LA Basin), work out agreements regarding the acceptability of one another's assessments.

THE CALIFORNIA STATE UNIVERSITY